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Extended Bridge Inspection Frequencies

Background

As part of the recently completed Office of Auditor General (OAG) audit to assess the effectiveness of MDOT's efforts to ensure that its Bridge Inspection Program complies with State and federal requirements related to staff qualifications and inspection processes, a recommendation was made to seek amendatory legislation to establish risk-based inspection frequencies.

MDOT is currently required to inspect all state owned bridges at a maximum frequency of every twenty four months per section 254.19a of the *Michigan Compiled Laws*. The only current exception to this law is under water element inspections, which are conducted every sixty months.

House Bill 4455 as proposed will amend section 19a (MCL 254.19a) of 1982 PA 375 as follows:

*Sec. 19a. The state transportation department shall institute **AND IMPLEMENT** a systematic **FEDERALLY COMPLIANT AND RISK-BASED INSPECTION** plan of biennial inspection of **FOR** all bridges under its jurisdiction.*

MDOT provided State Representative Glardon's office with the proposed language.

Discussion

As part of the response to the OAG audit, MDOT agreed to consider seeking amendatory legislation to establish risk-based bridge inspection frequencies and will also consider seeking Federal Highway Administration (FHWA) approval to lengthen the inspection intervals for State-owned and locally owned bridges or categories of bridges that warrant longer interval. HB 4455 is the first step in fulfilling this commitment.

Emphasis should be placed on the fact that risk-based inspection frequencies allow for some freedom to extend inspection frequencies for a population of bridges that may be in good condition, or bridge types where there is past history of durability, and reliability. These would be considered low risk bridges, and we could propose to extend the inspection frequencies up to 48 months. The following criteria could be applied:

- Bridges in good condition only
- Bridges with span lengths less than 100 feet
- Bridges with load path redundancy
- Bridges not scour critical
- Bridges not posted for overloads
- Bridges not susceptible to vehicular damage (high load hits)
- A new, or newly rehabilitated bridge
- Culverts in good or fair condition

As an example, MDOT owns 4446 bridges and culverts. Applying the above criteria results in 875 bridges, and 159 culverts that could potentially qualify for extended frequencies. This is roughly 23% of the network.

Statewide, there are 11,046 bridges and culverts. Applying the above criteria results in 1,282 bridges, and 1,053 culverts that could potentially qualify for extended frequencies. This is roughly 20% of the statewide network.

Any efficiency gained in extending frequencies for bridges that meet this criteria would not be in the form of financial savings, rather, MDOT would re-allocate resources for the increased inspections needed on poor bridges, scour critical bridges, and other high risk bridges with inspection frequencies of up to three months. Increased inspection frequencies is something that MDOT already does, however, there have been a lack of resources for the in-depth inspections.

It should be noted that biennial inspection of bridges not only provides reassurance of public safety, also, the condition data generated as a result of the inspections is used for a variety of asset management purposes. The data used to assist MDOT and locals make sound asset management decisions starts with inspection data collected at regular intervals.

Summary

MDOT supports the investigation of extended, or risk-based inspection frequencies that allows for flexibility to deploy resources for increased inspections of poor, or high risk bridges. If implemented, we feel this will have a large impact on local agency bridge inspections where the high risk bridges do need additional attention.

An example risk based scenario would be good bridges inspected every 48 months, fair bridges inspected every 24 months, and poor bridges inspected every 12 months or less.

Implementation will require a change in state law, and approval of the FHWA. There is a concern that agreement with this may send the wrong message in terms of the current condition of our system. The system is in dire need of additional funding to prevent a serious decline in condition. By extending bridge inspection frequencies for bridges that meet the above criteria, MDOT is not claiming the system in general, is in good condition, rather, allowing extended frequencies on low risk bridges, we can further increase the attention on poor, and high risk bridges.